IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of Roger Cayton et al.	SUBSTANTIALLY TRANSPARENT ABRASION-RESISTANT FILMS CONTAINING SURFACE-TREATED NANOCRYSTALLINE PARTICLES
Serial No.: 09/726,686	
Filed: November 29, 2000	Attorney Docket: 12951US01
	Group Art Unit: 1773
	Examiner: Leszek B. Kiliman

Assistant Commissioner for Patents
Washington, D.C. 20231

RESPONSE TO OFFICE ACTION

Dear Sir:

In response to the Office Action of October 11, 2002, please amend the above-captioned application as follows:

In the Claims

Please amend the claims as follows:

1. (Amended) A process for forming a substantially transparent, abrasion-resistant film from a film-forming composition containing surface-treated nanocrystalline particles dispersed in a cross-linkable resin, the process comprising the steps of:

(a) adding nanocrystalline particles to a medium, said nanocrystalline particles being selected from the group consisting of ceramics and metals;

(b) mixing the nanocrystalline particles and medium to form a dispersion;

(c) adding a surface treatment solution to the nanocrystalline particle dispersion, said surface treatment solution comprising one or more siloxane species;

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(d) mixing the nanocrystalline particle dispersion with the surface treatment solution such that said one or more siloxane species are disposed at the surface of at least some of said particles, whereby at least some surface-treated nanocrystalline particles are obtained;

(e) adding said surface-treated nanocrystalline particles to a cross-linkable resin to from a film forming composition, wherein the surface treated nanocrystalline particles are non-aggregating;

(f) applying said film-forming composition to a substrate;

(g) forming a substantially transparent abrasion-resistant film on said substrate from said film-forming composition.

4. (Amended) The process of claim 51, wherein the nanocrystalline particle dispersion has a concentration of the nanocrystalline particles in the range of from about 5 percent by weight to about 40 percent by weight.

18. (Amended) A substantially transparent, abrasion-resistant film comprising a cross-linked resin and a plurality of surface-treated nanocrystalline particles dispersed in a non-aggregating fashion in said cross-linked resin, said surface-treated nanocrystalline particles comprising nanocrystalline particles and at least one siloxane species disposed at the surface of at least some of said particles, wherein said nanocrystalline particles are selected from the group consisting of ceramics and metals.

26. (Amended) A process for making a film-forming composition containing surface-treated nanocrystalline particles dispersed in a cross-linkable resin, said film-forming composition being suitable for forming a transparent, abrasion-resistant film, said process comprising the steps of:

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(a) adding nanocrystalline particles to a medium, said nanocrystalline particles being selected from the group consisting of ceramics and metals;

(b) mixing the nanocrystalline particles and medium to form a dispersion;

(c) adding a surface treatment solution to the nanocrystalline particle dispersion, said surface treatment solution comprising at least one siloxane species;

(d) mixing the nanocrystalline particle dispersion with the surface treatment solution such that said at least on siloxane species is disposed at the surface of at least some of said plurality of particles, whereby surface- treated nanocrystalline particles are obtained;

(e) adding said surface-treated nanocrystalline particles to a cross-linkable resin, wherein the surface-treated nanocrystalline particles are non-aggregating, to form a film-forming composition; wherein a cross-linkable film-forming composition is formed.

44. (Amended) A film-forming composition comprising a cross-linkable resin and a plurality of surface-treated nanocrystalline particles dispersed in said cross-linkable resin in a non-aggregating fashion, said surface-treated nanocrystalline particles comprising nanocrystalline particles and at least one siloxane species disposed at the surface of at least some of said plurality of particles, wherein said nanocrystalline particles are selected from the group consisting of ceramics and metals.

50. (New) The process of claim 1, wherein the nanocrystalline particle dispersion has a concentration of the nanocrystalline particles in the range of from about .1 percent by weight to about 75 percent by weight.

51. (New) The process of claim 50, wherein the nanocrystalline particle dispersion has a concentration of the nanocrystalline particles in the range of from about 1 percent by weight to about 50 percent by weight.

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